

BACTERIAL BLIGHT OF CHRYSANTHEMUM

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This disease was observed for the first time in New York State in 1950 and was reported in Florida in 1951, at which time chrysanthemum blight had also been found in North Carolina, Ohio, Connecticut, and Pennsylvania (1). The disease is now found in most of the major chrysanthemum-growing areas of the United States.

SYMPTOMS. The first symptom of the disease is wilting of one or more branches of the plant during warm, sunny weather and recovery during the cool of the night. At a later stage the affected stem parts turn dark brown to almost black and the leaves, now permanently wilted, become dry and brittle. It is common to see the succulent tops of infected plants collapse and fall over (Fig. 1).



Fig. 1. Young chrysanthemum plant artificially inoculated with *Erwinia chrysanthemi*. Note the discolored collapsed stems



Fig. 2. Naturally infected chrysanthemum plant, the stem split open, showing decayed interior, and the wilted leaves.

When infected stems are split open the pith appears as a reddish brown, decayed mass; streaks of brown vascular tissue are visible below the affected area (Fig. 2). The decayed pith dries and leaves a hollow stem, easily flattened when pressed between the fingers.

DISSEMINATION. Infected tip cuttings in the propagation beds provide a source of inoculum from which adjacent plants become infected. The bacterium requires a

wound for the invasion of the host plant and for this reason the cutting out of the young growing tips ("pinching") provides ideal conditions for infection. Removing the tip of one diseased plant supplies enough inoculum, carried under the fingernails or on tools, to infect several healthy plants. Thus it is not uncommon to find groups of several diseased plants next to each other in a bed of otherwise healthy plants (Fig. 3). Young plants, especially those with succulent, fast-growing tissue, are more readily and severely attacked than older, less tender plants.



Fig. 3. Group of wilted young chrysanthemum plants, presumably infected during "pinching" operation.

CONTROL. Since the pathogen only invades wounded plants it is during the "pinching" operation that the chance of bacterial spread is greatest. Care should be taken to destroy stock plants suspected of carrying the disease and the rooting beds should be inspected regularly for wilted plants which should be rogued out and destroyed immediately. The soil in the propagation beds should be sterilized between crops.

Although formulations containing streptomycin have been proved to be effective in controlling the disease, their routine use is not recommended because plants can be adversely affected (3).

References

1. Burkholder, W. H., L. A. McFadden, and A. W. Dimock. 1953. A bacterial blight of chrysanthemums. *Phytopathology* 43:522-526.
2. Jackson, C. R. and L. A. McFadden. 1961. Chrysanthemum diseases in Florida. Revised by R. O. Magie and A. J. Overman. Univ. of Florida, Agr. Exp. Sta. Bull. 637A October 1966.
3. McFadden, L. A. 1958. Bacterial blight of Chrysanthemum. *Proc. Florida State Hort. Soc.* 71:419-425.